

S.N. 10/733,117

REMARKS

Applicants acknowledge the First Action on the merits, and request reconsideration of the claims, as amended.

Applicants have amended independent claim 1, which should be considered allowable over the cited prior art. Claim 1, as amended, includes essentially all features of former dependent claims 13-14 (now cancelled). Since claims 2-12 and 15-26 are all **dependent** upon (allowable) generic claim 1, they are entitled to consideration, as noted in the Restriction Requirement of 20 JUNE 2005, Page 2, last paragraph.

CLAIM OBJECTIONS TO CLAIMS 16 AND 23

Claim 16 was said to lack antecedent basis for the term "collectorless motor." The objected-to term is synonymous in the art with "electronically commutated motor" which is the term used in the present specification. See line 4 of the "Detailed Description." Accordingly, the terminology of claim 16 has been corrected, to be consistent with the specification.

Claim 23 has been amended, as suggested by the Examiner.

DRAWING OBJECTION

The drawings were objected to because they were not understood to show a "collectorless" motor. In the light of the foregoing explanation, it should be apparent that the changed terminology in claim 16 means that **no drawing change is needed**. The drawings already show an electronically commutated motor, with the commutation control circuit preferably located on circuit board 66 shown in FIG. 1.

ART-BASED CLAIM REJECTIONS

In the Office Action mailed 11 AUG. 2005, the Office has rejected pending claim 14, as being obvious over a combination of TRAGO and URYU. However, Applicants respectfully disagree with this opinion. Please consider the following comments.

S.N. 10/733,117

These comments are structured as follows:

1. a detailed discussion of the subject-matter of claim 14 (now 1) in view of the specification,
2. a detailed discussion of TRAGO,
3. a detailed discussion of URYU, and
4. a conclusion with respect to the patentability of the combination of claims 13-14 into now-amended main claim 1.

1. Subject matter of original claim 14 with reference to the specification:

As recited in original claim 14, an external rotor motor, according to the present invention, includes an internal stator 52 that is supported by a stationary support part 18, and an external rotor 49, for interaction with the internal stator 52. The external rotor 49 is mounted on bearings 24, 40 for rotation with respect to the internal stator 52 and has a casing part 14, on whose inner side 28 a permanent-magnet arrangement 50 is arranged. This permanent-magnet arrangement 50 coacts with the internal stator 52. The inventive external rotor motor further includes a control magnet 60 which is secured to the casing part 14 and at least one galvanomagnetic rotor position sensor 62 associated therewith, in order to sense the rotational position of the casing part 14, relative to the stationary support part. Between the control magnet 60, and the permanent-magnet arrangement 50 of the external rotor, is arranged a nonmagnetic spacer ring 58, as described at specification page 4, line 13.

S.N. 10/733,117

From the above, it is clear that the inventive motor has:

- (I) an internal stator mounted on a stationary support part which does not rotate during operation of the motor;
- (ii) an external rotor which is rotatably arranged on the stationary support part; and
- (iii) a nonmagnetic spacer arranged between the control magnet and the permanent-magnet arrangement of the external rotor.

2. Subject matter of TRAGO:

TRAGO (USP 6,455,960) describes, with respect to FIG. 2, a direct-drive roller motor 12 having an internal stator 35 and an external rotor 21. The internal stator 35 is mounted on a stator shaft 30 and includes stator coils/windings 39, 40. The stator shaft 30 is stationary, having a pair of stator shaft end support portions 31, 32 which are fixedly disposed on side beam support surfaces 18, 19. The external rotor 21 functions as a drive roller of a treadmill belt 11 and has a cylindrical housing 22 which is rotatably mounted on the stator shaft 30 using bearings 23, 24 via rotor end bells 25, 26. The cylindrical housing 22 has internally secured thereto a plurality of annular permanent magnets 36, 37, 38, which coact with the coils/windings 39, 40 of the internal stator 35, for rotation. Furthermore, the cylindrical housing 22 includes a rotor position sensor circuit 60 having rotor position sensors 61, 62, 63, and a four pole magnetic ring 70 which is bonded by a suitable manner to the cylindrical housing 22.

S.N. 10/733,117

3. Subject matter of URYU:

URYU (USP 6,729,433, issued MAY 2004) describes, with reference to FIG. 6, an electrically-powered steering device 1 having a motor 3. The motor 3 includes a rotor, having rotor magnets 56, which are secured on the periphery of a rotary shaft 55. The rotary shaft 55 has a flange 59, on the periphery of which magnets 60 are installed. The motor 3 further includes a stator having a yoke 15 with a laminated core 57 and a resinous hollow cylindrical bushing 61 secured on an inner wall thereof. The laminated core 57 supports a coil 58, which produces a magnetic field upon supply of current, thereby developing magnetic attraction to the rotor magnets 56, so that they rotate together with the rotary shaft 55. The resinous hollow cylindrical bushing 61 supports a Hall IC sensor 62. The Hall IC 62 works as an angular sensor, along with the magnets 60, to measure an angular position of the rotary shaft 55. Between the Hall IC 62 and the coil 58 of the stator, a non-magnetic ring 63 is secured on the inner wall of the yoke 15.

4. The rejection of the subject-matter of claim 14 as being obvious over a combination of TRAGO and URYU:

The Office has contended that the subject-matter of claim 14 (now recited in claim 1, as amended) is obvious over a combination of TRAGO and URYU. Specifically, the Office has stated that it would have been obvious, to one having ordinary skill in the art, to combine the teachings of TRAGO and URYU into an external rotor motor, wherein a nonmagnetic spacer is provided between the control magnet and the permanent-magnet arrangement of the external rotor.

Applicants **respectfully disagree** with this opinion. The Office has failed to establish a *prima facie* case of obviousness, as required according to MPEP § 2142. There is no suggestion or

S.N. 10/733,117

motivation, either in TRAGO and/or URYU or in the general knowledge of a person skilled in the art, to modify TRAGO or to combine the teachings of TRAGO and URYU with respect to pending claim 14.

Furthermore, such a combination must teach all claim limitations recited in pending claim 14. However, as described in more detail below, TRAGO and URYU lack motivation for combination and do not teach all claim limitations with respect to pending claim 14, as required according to MPEP § 2143.

As was noted above, while TRAGO describes a motor having an internal stator which is mounted on a stationary shaft, on which an external rotor is rotatably mounted using suitable bearings, URYU describes a steering device having a motor with an internal rotor which is mounted on a rotatable shaft inside a cylindrical housing that supports an external stator.

Since URYU describes an internal rotor motor which completely differs from the external rotor motor described by TRAGO, URYU cannot make any suggestion as to how to modify the arrangement of TRAGO in order to obtain the external rotor motor according to pending claim 14. Accordingly, it is respectfully submitted that the suggestion to combine TRAGO and URYU can only be based on impermissible hindsight, selecting bits and pieces from various references, and combining them in a way that was only taught by the present disclosure.

Furthermore, according to FIG. 6 and Col. 9, lines 5-8 of URYU, the non-magnetic ring 63 is secured in the inner wall of the yoke between the Hall IC 62 (and the magnets 60) and the coil 58 of the external stator. However, according to the subject-matter of claim 14 (now 1), the nonmagnetic spacer is arranged between the control magnet and the permanent-magnet arrangement of the external rotor. In other words, even a hypothetical combination of TRAGO and URYU would not teach all the elements of claim 14.

S.N. 10/733,117

CONCLUSION

Accordingly, original claim 14 was clearly patentable over such a hypothetical combination of TRAGO and URYU, and the combined claim 1/14 is in condition for allowance. The ADELSKI and SHIGA references have been reviewed, and are respectfully submitted to be no more pertinent. Claims 2-12 and 15-26 all depend from allowable claim 1, so they also are in condition for allowance.

If the Examiner notes any remaining informalities, or wishes to make any suggestions to place the application in condition for allowance, a telephone call to the undersigned is invited.

Respectfully submitted,

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